

(19) **United States**(12) **Patent Application Publication**
Smith et al.(10) **Pub. No.: US 2003/0168591 A1**(43) **Pub. Date: Sep. 11, 2003**(54) **METHOD AND APPARATUS FOR
MULTISPRAY EMITTER FOR MASS
SPECTROMETRY****Publication Classification**(51) **Int. Cl.⁷ H01J 49/04**(52) **U.S. Cl. 250/288**(76) **Inventors: Richard D. Smith, Richland, WA (US);
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(21) **Appl. No.: 10/091,833**(22) **Filed: Mar. 5, 2002**(57) **ABSTRACT**

A method and apparatus that utilizes two or more emitters simultaneously to form an electrospray of a sample that is then directed into a mass spectrometer, thereby increasing the total ion current introduced into an electrospray ionization mass spectrometer, given a liquid flow rate of a sample. The method and apparatus are most conveniently constructed as an array of spray emitters fabricated on a single chip, however, the present invention encompasses any apparatus wherein two or more emitters are simultaneously utilized to form an electrospray of a sample that is then directed into a mass spectrometer.

